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W. ROBERT MOORE

IN FLOODED FIELDS EIGHT MILES FROM PEIPING, CHINESE FARMERS TRANSPLANT RICE SEEDLINGS

The white-jacketed wader takes bundles of sprouts from their basket-beds. Co-workers laboriously plant them, seedling by seedling. In the background rises the Summer Palace of the "Empress Dowager," one of the last monarchs to hold court in Peiping (Bulletin No. 1).

Bulletin No. 1, March 5, 1951

Peiping Wielded Power of Khan and Emperor

ON THE very top terrace of Peiping's Altar of Heaven, a stone slab arbitrarily marks "the center of the universe." Below that ancient boast of god-emperors spreads Peiping, the capital of communist China (pronounced "bay-ping" and generally translated "northern peace").

Dispatches from China today reporting "Peiping says" or "Peiping does" are blunt reminders that China's rule has returned again to its ancient seat. Before the nationalist government moved to Nanking on the Yangtze, in 1928, Peiping—alias Chi, Yu Chou, Yenching-tu, Ta-tu, Khanbaligh, and Peking—had been the Chinese capital off and on for more than 2,000 years.

"Forbidden City" in Exact Center

Peiping's history is the history of China's glory and bloodshed. It is a city beside a city, and cities within a city, each separated by great mud-brick walls. On the south is the Chinese City, on the north the Tatar City, their division a reminder that the communist sweep from Manchuria marched the same course that Manchu bannermen took ages before.

Inside the Tatar City is the Imperial City, and in the exact center of all, yellow-roofed pavilions of power stand empty guard for the Forbidden City, home of the Dragon Emperors, seat of heaven-empire—long dead. In the countryside around the city also stand monuments to the glory of departed royalty (cover).

From the 40-foot-thick walls encircling and dividing Peiping can be seen the legation quarter, a city in itself beside the Forbidden City. Here, where United States Marines patrolled after the Boxer revolt, are reported to be the buildings which now house the "Central People's Government." Side by side is a panorama of filth and clamor amid Oriental beauty, narrow twisting lanes (illustration, next page) leading to huge towered gates, flimsy hovels that contrast with the vivid colors and sweeping lines of palace and pagoda.

Peiping is one of the oldest living cities in the world. As far back as 1100 B. C. (about the time of the siege of Troy), a semimythical town named Chi existed on the northern plain of the Yellow River. Destroyed in 221 B. C., all traces of it have disappeared. But near its site, guarding the Great Wall of China, there grew up first a provincial trading center, then a governor-general's town, finally an imperial seat.

Mongols Gave Way to Mings

Genghis Khan swept into China and took the city. His grandson, Kublai, built avenues broad enough for nine horsemen abreast, and reared bell and drum towers that still survive. By the time Marco Polo came in the 13th century, Khan-baligh—"City of the Great Khan"—was capital of a Mongol empire that stretched across Asia to Mesopotamia.

The Mongols eventually gave way to the Ming Dynasty. In 1421,

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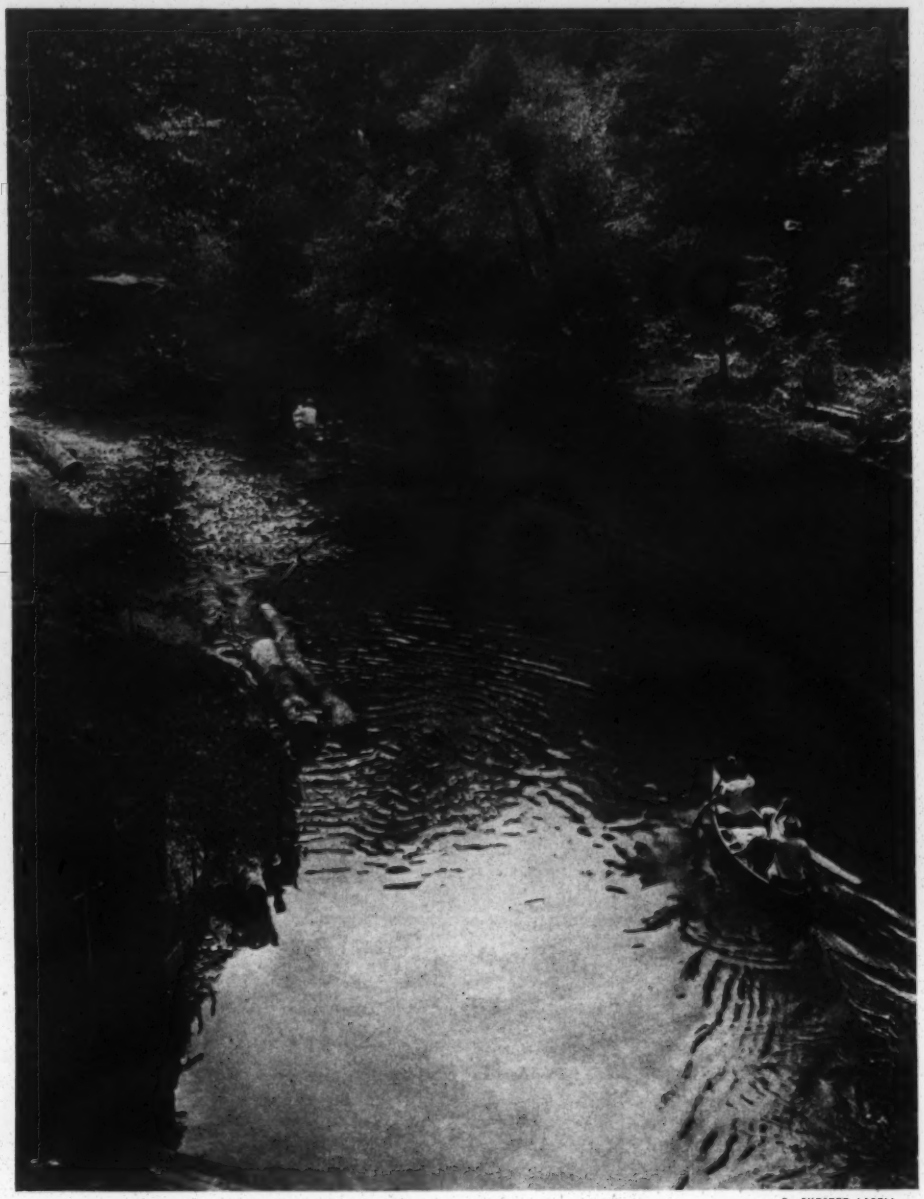

C. CHESTER LASELL

THE SUSQUEHANNA RIVER STARTS AS A WINDING TREE-ARCHED BROOK AT COOPERSTOWN, NEW YORK

In waters once paddled by Deerslayer, hero of James Fenimore Cooper's Leatherstocking Tales, a canoe party begins a journey down the east coast's longest river (Bulletin No. 2). Though its valley is heavily populated and spotted with industrial cities and mines, the Susquehanna still is a stream of sylvan or pastoral charm for most of its 444 miles. Even the name Susquehanna still connotes beauty as it did to Robert Louis Stevenson years ago. He once crossed the river by train and asked its name. "And when I . . . heard that it was called the Susquehanna," he wrote, "the beauty of the name seemed to be part and parcel of the beauty of the land . . . That was the name, as no other could be, for that shining river and desirable valley."

Bulletin No. 2, March 5, 1951

Susquehanna Is Appalachian "Pathfinder"

THE Susquehanna River, because of a mighty ice jam which threatened the city of Columbia, now is in the bad grace of the citizens of that Pennsylvania city. Over the years, however, the long crooked Susquehanna has brought more good than evil to its valley residents.

At one time, when Congress was deciding where the seat of the new republic should be, the Susquehanna almost brought the national capital to Columbia. Then called Wright's Ferry, the village adopted its more imposing name—perhaps in anticipation—but Congress finally decided on the Potomac instead of the Susquehanna for the capital site.

River Route Used by Land and Water Travelers

The greatest service the Susquehanna has rendered throughout the generations has been that of "pathfinder" through the rugged ranges of the Appalachians. Just as the first settlers in the valley avoided the mountains and followed the river to their forested homesites, so today Diesels thrum and highway traffic roars along the riverbanks.

In between these two extremes of time the river route was used by armies of the French and Indian War and the Revolution; by ambitious boatmen trying to push steamers over its rocky shallows; by canallers whose snail's-pace transport on artificial waterways beside the river was the wonder of the day; by roisterous raftsmen who rode raw timber down the racing stream toward the markets of Philadelphia and Baltimore; and by fishermen and eelers who trapped the annual runs of shad and eels (now largely cut off because of dams on the lower river).

The Susquehanna, greatest United States river on the Atlantic seaboard, zigzags 444 miles from west central New York State, through Pennsylvania, and into Maryland. It empties into Chesapeake Bay. Every mile has its scenic, historic, or literary association.

The river's source is Otsego Lake, scene of James Fenimore Cooper's novel, *The Deerslayer*. At the south end of the lake stands Cooperstown, founded by the novelist's father and noted today for its Baseball Hall of Fame. There Abner Doubleday helped standardize the national game.

The Jordan of Mormonism

Otsego's rivulet-size outlet is the beginning of the Susquehanna (illustration, inside cover). It flows through dairy country, picking up tributaries, and soon becomes a major stream. Towns and cities cling to its banks—Oneonta, Unadilla, Sidney, Bainbridge.

In the Great Bend area, where the river flows into Pennsylvania then back into New York, the Susquehanna is the Jordan of Mormonism. The American church, eventually reaching sanctuary in Utah, began when Joseph Smith and his first convert were baptized in Susquehanna waters.

Past the industrial centers of Binghamton, Johnson City, and Endicott, the river courses to enter Pennsylvania again. Athens was a backwoods crossroad where three great Susquehanna travelways joined. George Washington dispatched large portions of his army to meet there and march against the Iroquois Indians, allies of the British.

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Yung Lo, third Ming emperor, began to build the Forbidden City within a great metropolis he called Peking—"northern capital." Yung Lo's city is much the same today. Manchus came from the north in 1644 to seize the Dragon Throne, but added little other than ornate decoration.

In 1900 Allied columns marched on Peking from the sea to rescue their legations besieged in the Boxer uprising. Eleven years later revolution stripped the last of the Manchus of their power. The Chinese Republic was established under Sun Yat Sen.

The gates of the Forbidden City were opened. Lakes, formal gardens, and pavilions of the "Sea Palaces" became public parks. Life went on in the crowded streets and ancient universities, but there was no industry to supply the relative prosperity the city had known in the days of a wealthy court. The nationalists moved their capital to Nanking.

At the Marco Polo bridge, seven miles southwest of Peiping (as it was renamed), Japanese and Chinese soldiers clashed in 1937. For eight years Peiping was under Japan's yoke. From Manchuria, in 1948, came the Chinese communists. In less than a year they did what Japan never succeeded in doing. All of continental China fell to their armies. In Peiping, capital under Kublai Khan of the largest land empire in world history, they formally established their regime in October, 1949.

NOTE: Peiping is shown on the National Geographic Society's map of China. Write the Society's headquarters, Washington 6, D. C. for a price list of maps.

For further information, see "Power Comes Back to Peiping," in the *National Geographic Magazine* for September, 1949; "Peacetime Plant Hunting About Peiping," October, 1937*; "Peiping's Happy New Year," December, 1936; "Approach to Peiping," February, 1936; and "Glory That Was Imperial Peking," June, 1933 (out of print; refer to your library). *(Issues marked with an asterisk are included on a special list of Magazines available to teachers in packets of ten for $1.00; issues unmarked are 50¢ a copy.)*

BRANSON DE COU FROM GALLOWAY

FOOT AND RICKSHA TRAFFIC AND ADVERTISING BANNERS FILL A PEIPING STREET

Bulletin No. 3, March 5, 1951

Paris's Place de la Concorde Belies Name

AFTER nearly three centuries of fame, excitement, and conflict, a favorite bit of Paris has just had its face lifted.

The renovation of the Place de la Concorde is more practical than glamorous—a firm surface of stone blocks replaces the wooden pavement trod by citizen, soldier, and sight-seer for the past 50 years.

This change, however, is not likely to alter the character of the celebrated quadrangle. The Place de la Concorde has often failed to live up to its name as a place of peace and agreement, thereby playing a prominent part in the history of Paris, and of France.

Fireworks Accident Kills Hundreds

The square was first laid out in 1763 when King Louis XV was pleased to have an equestrian statue of himself set up in an uncultivated field west of the Palace of the Tuileries. The field was accordingly tidied up and given the name La Place Louis Quinze.

Tragedy struck there seven years later when a large crowd gathered to celebrate the marriage of the Dauphin, later Louis XVI, to Marie Antoinette. A rocket misfired during a fireworks display and in the resulting stampede some 1,200 people were killed. Another 2,000 were injured. This disaster was a bitter omen of the bloodletting that was to come in little more than two decades with the French Revolution.

By 1793 Louis XV's bronze statue had been melted down and recast into cannon. A clay figure of Liberty replaced it, and the square's name was changed to La Place de la Revolution. Moreover, a grim newcomer was doing business on the spot—the thirsty guillotine. During the two-year "Reign of Terror" almost 3,000 persons were beheaded in the square by this sinister device. The victims included the luckless Louis XVI and Marie Antoinette, Charlotte Corday, and the Revolutionary leaders, Danton, Robespierre, and Saint-Just.

Egyptian Obelisk Rises in Center

Near the turn of the 18th century the square was hopefully named Concorde. It was to lose this title twice but regain it in 1830, and it has kept it ever since. In spite of this peaceful name, however, Prussian, Russian, and British soldiers encamped on it in 1814 and 1815. In 1871 the Prussians returned to bivouac there.

Napoleon III laid out the Place very much as it is today. Encompassing more than 80,000 square yards, it is considered one of the most beautiful squares in the world, and it is one of the largest. In its center rises the obelisk of Luxor (illustration, next page), gift of an Egyptian king to Napoleon III. It was installed in 1836 and serves today, as it did in Moses's time, as part of the world's largest sundial.

At each corner of the square rise two monuments. These represent the chief cities of France. Two fountains, one on each side of the obelisk, are copies of those in the Square of St. Peter's in Rome. From the northern side of the Place the buildings of the Ministry of Marine, the Hotel

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The scenic stretch from Towanda to Pittston leads into the Scranton and Wilkes-Barre coal region. From there to its mouth, the Susquehanna is darkened by millions of coal particles. Downstream, "Pennsylvania's navy" of dredges sucks up collected deposits of this "river coal."

The West Branch of the Susquehanna flows into the main stream at Northumberland-Sunbury. It drains the portion of the state which provided most of the timber for Pennsylvania's 19th-century lumber boom.

"A mile wide and a foot deep," the combined stream flows south, cutting through ridge after ridge of the Appalachians and creating some of the East's prettiest riverscapes. At Harrisburg, Pennsylvania's capitol is reflected in the river. Great dams (illustration, below) harness the flood before it reaches tidewater.

NOTE: The Susquehanna appears on the Society's map of Northeastern United States.

See "Down the Susquehanna by Canoe," in the *National Geographic Magazine* for July, 1950; "Artists Look at Pennsylvania" (16 color reproductions of paintings), July, 1948*; "In the Pennsylvania Dutch Country," July, 1941; "Roads from Washington," July, 1938; and "Penn's Land of Modern Miracles," July, 1935.

FAIRCHILD AERIAL SURVEYS, INC.

POWER FROM SUSQUEHANNA'S SAFE HARBOR DAM LIGHTS UP CITY STREETS MILES AWAY. BEYOND THE DISTANT ISLANDS, A MILE-LONG BRIDGE ENTERS COLUMBIA, PENNSYLVANIA (right)

Zinc Goes to War; Fewer News Pictures

ZINC, jack-of-all-work in the metal-maker's furnace, has gone to war. This means fewer pictures in American newspapers during the months ahead.

News pictures are reproduced from plates of rolled zinc. As 1951 began, the National Production Authority ordered all newspapers to cut their use of zinc by 20 per cent—in effect, to pass up printing one photograph out of every five.

Life Preserver for Steel

Once zinc (illustration, next page), a lustrous, blue-white metal, was considered akin to the "philosopher's stone" by medieval alchemists, because it would turn copper into "gold" (actually brass). For many defense needs today, zinc is more precious than gold. Its myriad uses, from brass cartridge cases to galvanized-iron garbage cans, have again put it high on the nation's list of critical materials.

An enemy of rust, zinc has an amazing chemical ability to sacrifice itself for other metals. Steel and iron are major benefactors. Given a galvanizing treatment of molten zinc, they acquire a gleaming coat that will long withstand the ravages of atmospheric moisture or the ocean's wave. Steel does not corrode as long as any zinc remains.

Brass-making is a close second to galvanizing in consuming thousands of tons of zinc annually. Brass for machine-gun cartridges and six-inch shells, admiralty metal for shipboard fittings and marine hardware, pipe brass for power plants, tube brass for truck and tank radiators—these are but some of zinc's uses in war.

Rolled zinc makes casings for walkie-talkie batteries, as well as the dry cells of peace. Zinc plates gird the hulls of fighting ships with an antirust belt. Zinc alloys may be die-cast into the parts of countless machines. Zinc oxides and sulfides give pigments for paint and tiles, better curing properties for tires and tank treads, shatter-resistance for glass and ceramics. From toys and organ pipes to radio condensers and galvanized Quonset huts, zinc is one of the chief sinews of industrial might.

Rome's Golden Age Was Actually Brass

Strangely enough, zinc remained unidentified as a basic element until the Renaissance, although it was a component of existing brass relics far older than recorded history. Hindu and Chinese metalworkers knew and used it in cultures predating those of the Western world. Bracelets of zinc were found in the ruins of Cameros, the Isle of Rhodes city destroyed about 500 B. C.

Roman craftsmen discovered that a white calamine ore of unknown content turned copper into a passable imitation of gold. The Golden Age under the Emperor Augustus paid its way with coins of brass. Through the Dark Ages, alchemists kept the mysterious "white earth" to themselves while they sought the elusive philosopher's stone that would enable them to transmute base ores into precious metals. Smelters handling lead

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Crillon, and the American Embassy look across the paved expanse to the river.

To the Place de la Concorde came the French liberating forces in 1944 to fight members of the German staff, housed in the near-by Hotel Meurice. There, too, came thousands of American soldiers, swinging down the Champs Elysees from the Arc de Triomphe, on their victory parade. To them, as to thousands of others, the square was a sight to be remembered long "after they've seen Paree."

NOTE: Paris may be located on the Society's map of Western Europe.

For additional information, see "Home Life in Paris Today," in the *National Geographic Magazine* for July, 1950; "Paris Lives Again," December, 1946; "Americans Help Liberated Europe Live Again," June, 1945; "Paris Freed" and "Seeing Paris on a 48-Hour Pass" (12 color photographs), April, 1945*; "Paris Delivered," January, 1945*; and "Paris in Spring," October, 1936; see also, in the GEOGRAPHIC SCHOOL BULLETINS, December 4, 1950, "Rare Disease Menaces Notre Dame Cathedral"; and "Nations Talk Defense at Fontainebleau," March 14, 1949.

RICHARD A. HANSEN

PEACEFULLY, IN THEIR ART, EAST AND WEST MEET TO ADORN THE PLACE DE LA CONCORDE

From the center of Paris's Place de la Concorde an Egyptian obelisk points skyward through the mist of an Italian-designed fountain. Hieroglyphics on its pink granite sides relate deeds of Rameses II, ruler in whose honor it was erected on the Nile at Thebes more than 30 centuries ago. Presented to Napoleon III by Mohammed Ali—founder of Egypt's present ruling house—the monolith has towered before the Ministry of Marine (background) for more than a century. To the left, blurred by the fountain spray, rises the classic façade of the Madeleine (Church of St. Mary Magdalene).

Atomic Gazetteer Covers the Globe

THE atomic age, born on December 2, 1942, in a cramped and improvised laboratory beneath an athletic stadium in Chicago, now has pushed its frontiers to the farthest corners of the world. Communist China is the latest to announce establishment of an atomic-research institute.

Due to national secrecies, the actual number of atomic installations is uncertain. But even the laboratories and factory-cities openly identified as atomic-energy centers make an impressive list.

Fifteen States Have Major Installations

In the United States, nearly 1,300 laboratories, industrial plants, colleges, and research institutions are engaged in atomic-energy development. Tennessee's celebrated Oak Ridge makes uranium-235. Hanford, in Washington, produces plutonium. Los Alamos, New Mexico (illustration, next page), puts the dread bomb together. Argonne, near Chicago, and Brookhaven, on Long Island—a two-hour trip from Times Square—are national laboratories worthy of the name "atomic universities."

In the desert near Arco, Idaho, is the huge new Reactor Testing Station. Knolls Atomic Power Laboratory and the Rochester Project are in New York State. Mound Laboratory is in Ohio; Westinghouse, in Pittsburgh; Ames metallurgical laboratory, in Iowa; Sandia Laboratory, at Albuquerque, New Mexico; the University of California's Radiation Laboratory, at Berkeley, and its atomic-energy project at Los Angeles.

A new U-235 plant is being built at Paducah, Kentucky. Voluntary subscriptions by University of Michigan alumni will pay for study of humanitarian benefits of atomic energy. The first non-government nuclear reactor is to be built by North Carolina State College at Raleigh.

A series of atomic-weapon tests has just been concluded on a new range near Las Vegas, Nevada. In a tract along the Savannah River, scientists will try to match the sun's fury by devising a hydrogen bomb.

Rest of World Active

Canada's "atomic city" is 96 miles northwest of Ottawa at Chalk River, Ontario. Two nuclear reactors are in operation there.

Most famous of England's seven centers is Harwell, Berkshire, near Oxford. Uranium is processed at Springfields, Lancashire; near Warrington is a center for "nuclear engineering." In mountainous west Cumberland, near Sellafield, are huge production reactors—Britain's Hanford.

France began atomic experiments in 1948 at Fort de Chatillon in the Paris suburbs. Since then a second atomic center has been started. Norway is building a research pile at Kjeller, a suburb of Oslo. Sweden's Atomic Energy, Inc., has a reactor under construction. Cyclotrons are already in operation in Stockholm and Uppsala.

Belgium can point to an atomic laboratory at Brussels (Bruxelles) University. The Swiss have a research station on the 11,340-foot Jungfraujoch. Scientists of Western Germany recently applied for permission to set up their own atomic pile for fundamental research.

Hungarian physicists, using uranium and thorium found in the

and copper finally led first to the isolation of zinc as a metal, then to its correct identification.

Today, zinc ores are dug and smelted from Arkansas to Australia. The United States mines more of it than any other country, yet still must import zinc from abroad. During World War II, 3,642,000 tons were dug from America's relatively low-grade deposits, more than a third of the world's total output.

NOTE: For further information, see "Metal Sinews of Strength," in the *National Geographic Magazine* for April, 1942 (this issue is out of print; refer to your library).

WILLARD R. CULVER

FROM THE LADLE, MOLTEN ZINC POURS INTO FLAT MOLDS FOR SHIPPING

This workman in Anaconda, Montana, scrapes off impurities. Dark goggles protect his eyes from the glare of the hot metal. Anaconda is one of the world's leading copper- and zinc-smelting cities.

Dallas, Texas, has 432,927 people according to the 1950 census—47 per cent more than a decade ago. It thus supplants Indianapolis (424,683) as the largest U. S. city not on navigable water. Denver (412,856) is a close third.

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Velence Hill, are reported pursuing atomic research "on a large scale" at a place 30 miles southwest of Budapest. India has an Atomic Energy Commission and plans a "factory for atomic research" in Bombay. In Argentina, Australia, Japan, Mexico, New Zealand, and Poland, discoveries of uranium deposits have brought reports of accelerated atomic research. Australia and New Zealand, in particular, plan to operate atomic piles.

There is much speculation as to the site of the Soviet Union's "Atomgrad," the Russian Los Alamos associated with the Kremlin's propaganda claims that it "moved a mountain" with atomic energy. Most frequently mentioned is the Angara River development near Lake Baikal, in the Irkutsk region of Siberia. Other possibilities are the Ural region, where low-grade uranium deposits exist; Tashkent, industrial capital of the Uzbek Republic; and the Caucasus area east of the Black Sea. "Somewhere in Siberia," it has been guessed, was the site of the atomic explosion which President Truman reported to the world on September 23, 1949.

NOTE: For additional information, see "Adobe New Mexico," in the *National Geographic Magazine* for December, 1949; "Operation Crossroads" (2 color reproductions of paintings, 8 color photographs), April, 1947; "Farewell to Bikini," July, 1946; and "Your New World of Tomorrow," October, 1945*.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 22, 1951, "Savannah River Site Added to Atomic Map"; "Idaho Atomic Plant near 'Craters of Moon'," April 25, 1949; and "Atomic Center Modernizes Ancient Harwell," November 15, 1948.

JUSTIN LOCKE

A QUONSET HUT MAKES A COSY CLASSROOM IN "THE ATOM CITY"—LOS ALAMOS, NEW MEXICO